

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000560**Date Inspected:** 28-Sep-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Benicia, CA**CWI Name:** Michael Johnson**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Procedure Qualification Record (PQR) Test**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Danny C. White (B89) is present at the Ironworkers Apprenticeship Training Facility as requested by American Bridge/Flour (ABF) for the purpose of witnessing Procedure Qualification Record (PQR) tests. On this date, the QA Inspector observed the following personnel present: Smith-Emery Company Quality Control (QC) Representative Certified Welding Inspector (CWI) Mr. Michael Johnson, ABF Representatives Mr. Tommy Gibson, Mr. Rick Clayborn and welder Mr. Dan Gordon.

At the beginning of the shift the QA Inspector observed the welding operators deposit (4) weld passes onto the PQR test plate known as ABF-PQR-020-1-CR in the 3G position. The welders are using 1/16 inch diameter (1.6mm) Hobart Tri Mark TM-910 E71T-1M (FCAW-G) welding wire and 84% Argon / 16% Carbon Dioxide gas. The welding operators discovered significant porosity through-out the fourth weld pass. See photo below for additional information. ABF informed the QA Inspector that the above mentioned test plate will not undergo further welding and this test plate will be considered as practice.

The welding operators then deposited 100 millimeters of weld onto a non-PQR test plate assembly and stopped welding since the entire weld contained excessive porosity. At this point the welders began to disassemble the welding machine trying to find the nature of the problem. The welders disconnected the Miller suitcase unit and replaced it with a Lincoln LN 25 wire feeder.

Following the replacement of the wire feeder unit, the QA Inspector observed the welders place a second set of PQR test plates in the 3G position. The QA Inspector was informed that this set of test plates will have designation ABF-PQR-020-1-CR.

Welder Dan Gordon deposited (3) sequential weld passes utilizing a Bug-O Systems mechanical device that travels on a magnetic track. Mr. Johnson and the QA Inspector monitored welding amperage, voltage and travel

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speed parameters. The welders are the same welding wire and gas as mentioned above. For specific welding parameters recorded during this PQR see Caltrans Welding Witness Report, TL-6032 generated upon completion of this PQR test plate.



### Summary of Conversations:

The QA Inspector was informed that this PQR test plate does not have a designation after the -1 although this is actually the second effort to weld this PQR test plate. The QA Inspector was informed that the CR designation in ABF-PQR-020-1-CR and is being welded specifically for reproducing the Charpy V Notch retest. The QA Inspector observed that this PQR test plate is being welded with approximately the same welding parameters as ABF-PQR-020-1. The QA Inspector was informed that the Charpy V Notch test on the PQR test plate known as ABF-PQR-020-1 was performed at 0 degrees F instead of -20F qualification for Fracture Critical requirements.

The QA Inspector was informed by ABF that PQR test plate ABF-PQR-020-1-CR will undergo informational Ultrasonic Testing (UT) and informational Radiographic Testing (RT) prior to the Charpy V Notch samples being removed from the test plate.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	White,Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Mertz,Robert	QA Reviewer

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